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PATENT & TRADEMARK OFFICE

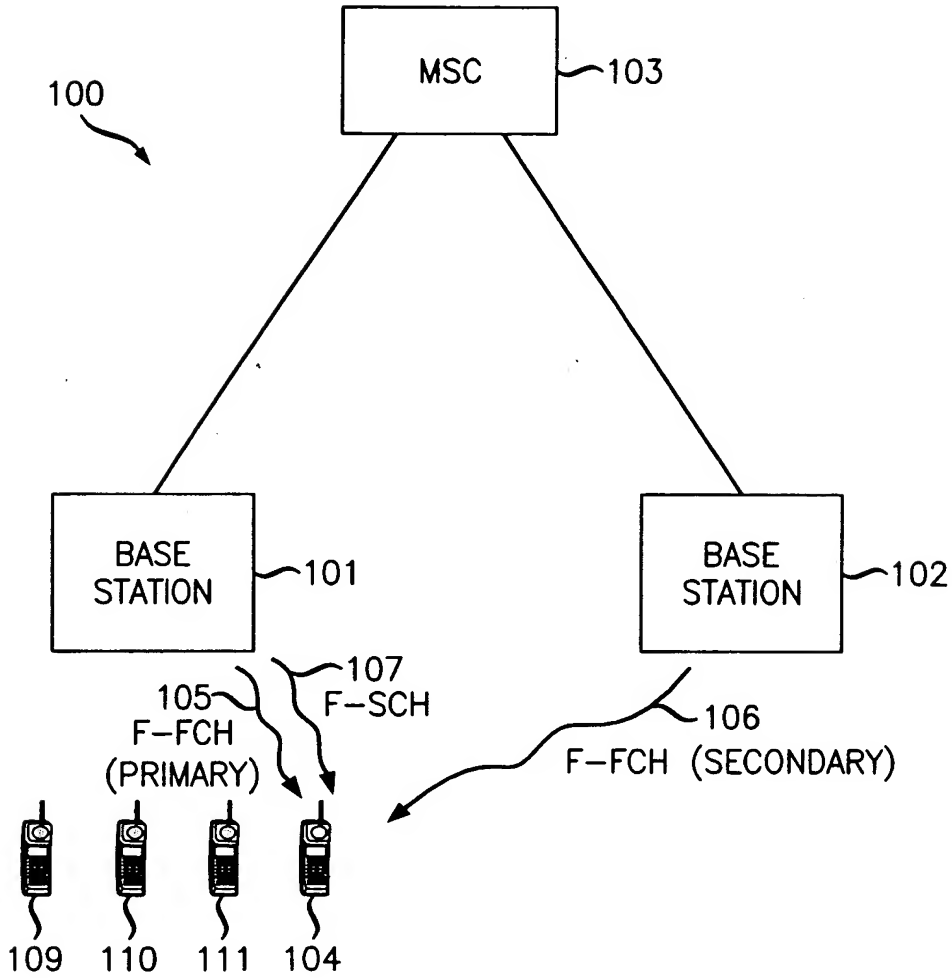


FIG. 1

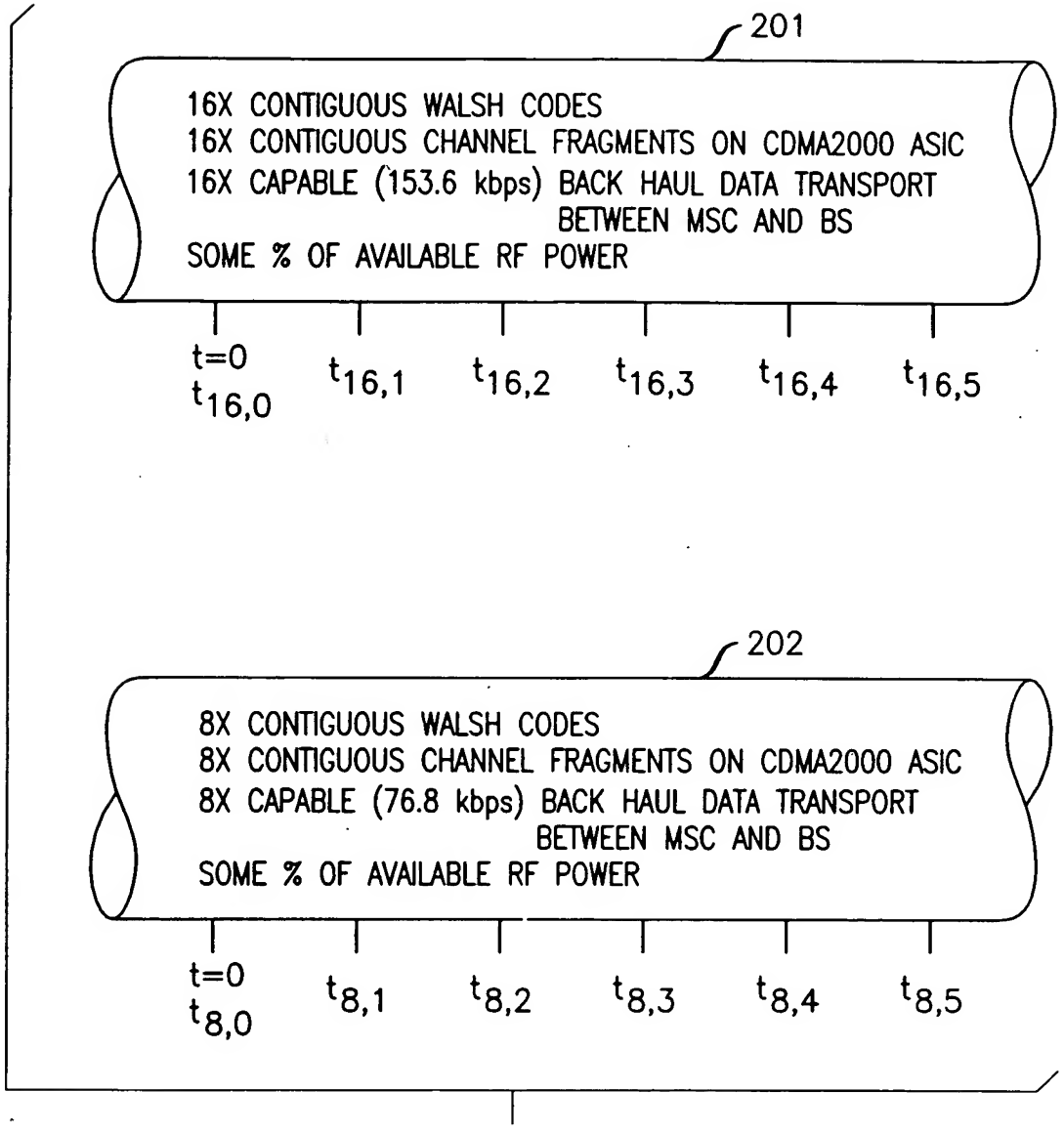

201
16X CONTIGUOUS WALSH CODES
16X CONTIGUOUS CHANNEL FRAGMENTS ON CDMA2000 ASIC
16X CAPABLE (153.6 kbps) BACK HAUL DATA TRANSPORT BETWEEN MSC AND BS
SOME % OF AVAILABLE RF POWER
t=0
t16,0
t16,1
t16,2
t16,3
t16,4
t16,5
202
8X CONTIGUOUS WALSH CODES
8X CONTIGUOUS CHANNEL FRAGMENTS ON CDMA2000 ASIC
8X CAPABLE (76.8 kbps) BACK HAUL DATA TRANSPORT BETWEEN MSC AND BS
SOME % OF AVAILABLE RF POWER
t=0
t8,0
t8,1
t8,2
t8,3
t8,4
t8,5

FIG. 2

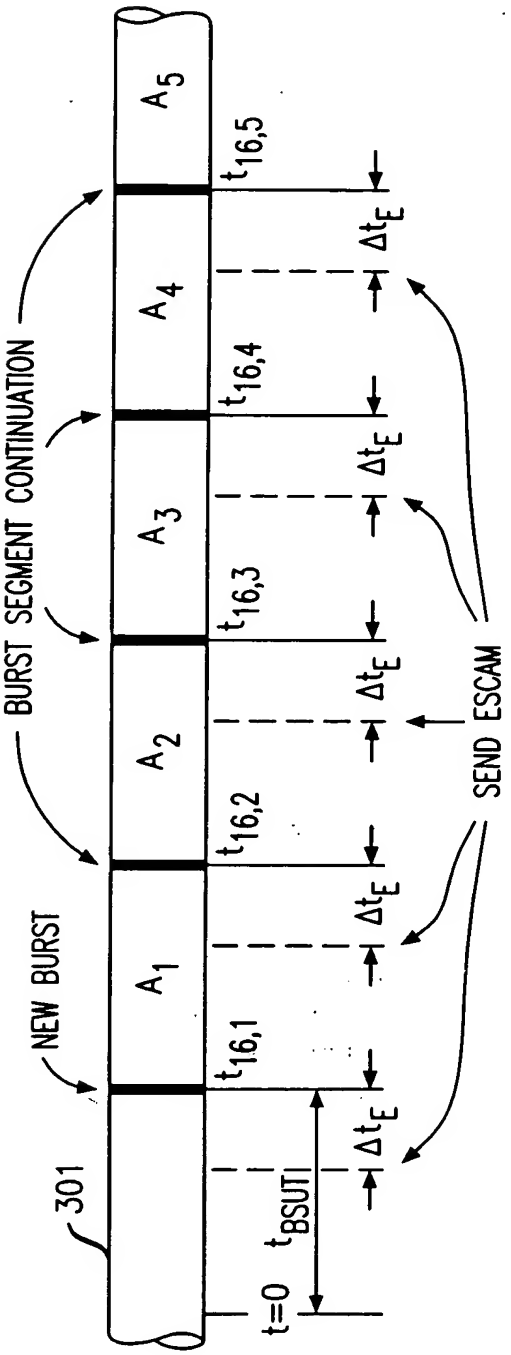

301
NEW BURST
BURST SEGMENT CONTINUATION
SEND ESCAM
A_1
A_2
A_3
A_4
A_5
$t_{16,1}$
$t_{16,2}$
$t_{16,3}$
$t_{16,4}$
$t_{16,5}$
Δt_E
t_{BSUTI}
t=0

FIG. 3

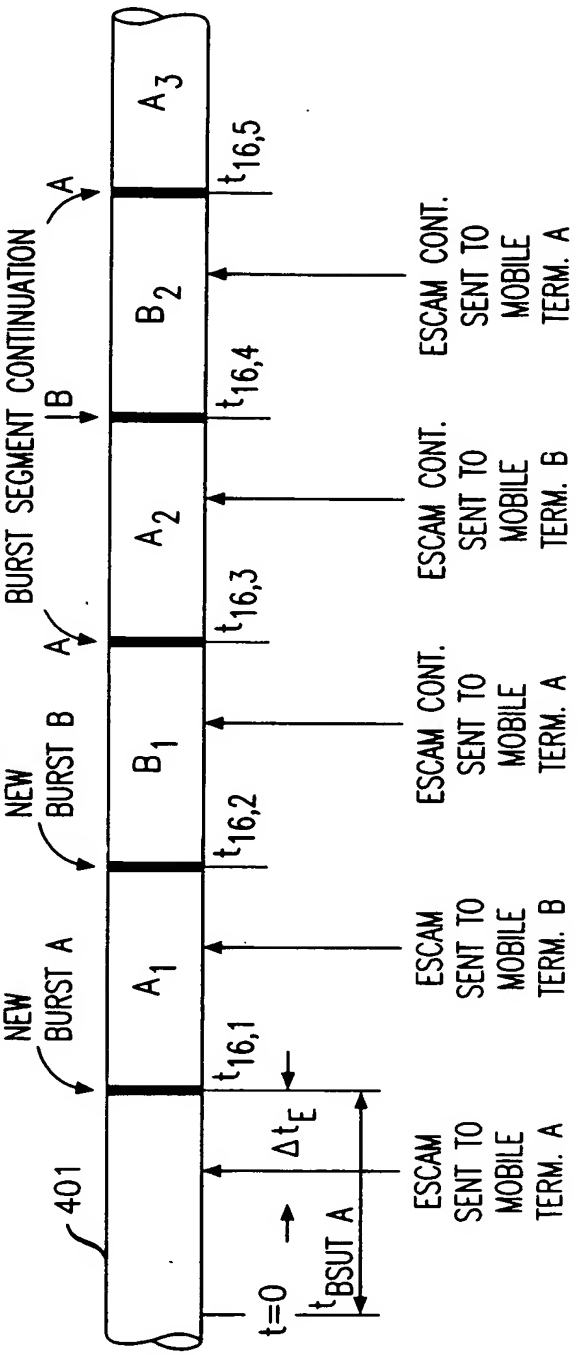

401
NEW BURST A
NEW BURST B
BURST SEGMENT CONTINUATION
A
B
A
A_1
B_1
A_2
B_2
A_3
$t_{16,1}$
$t_{16,2}$
$t_{16,3}$
$t_{16,4}$
$t_{16,5}$
Δt_E
$t_{BSUT\ A}$
t=0
ESCAM SENT TO MOBILE TERM. A
ESCAM SENT TO MOBILE TERM. B
ESCAM CONT. SENT TO MOBILE TERM. A
ESCAM CONT. SENT TO MOBILE TERM. B
ESCAM CONT. SENT TO MOBILE TERM. A

FIG. 4

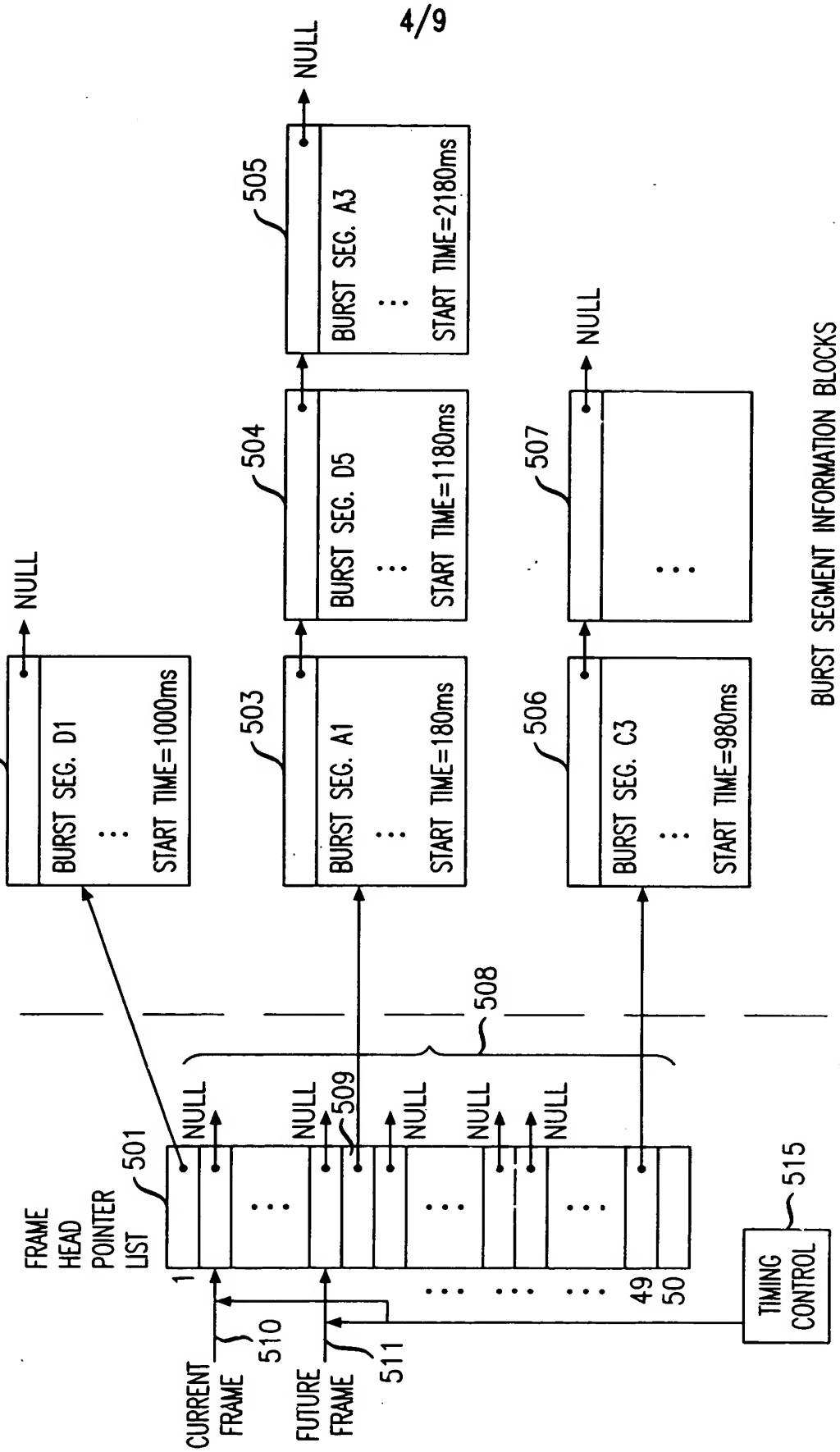
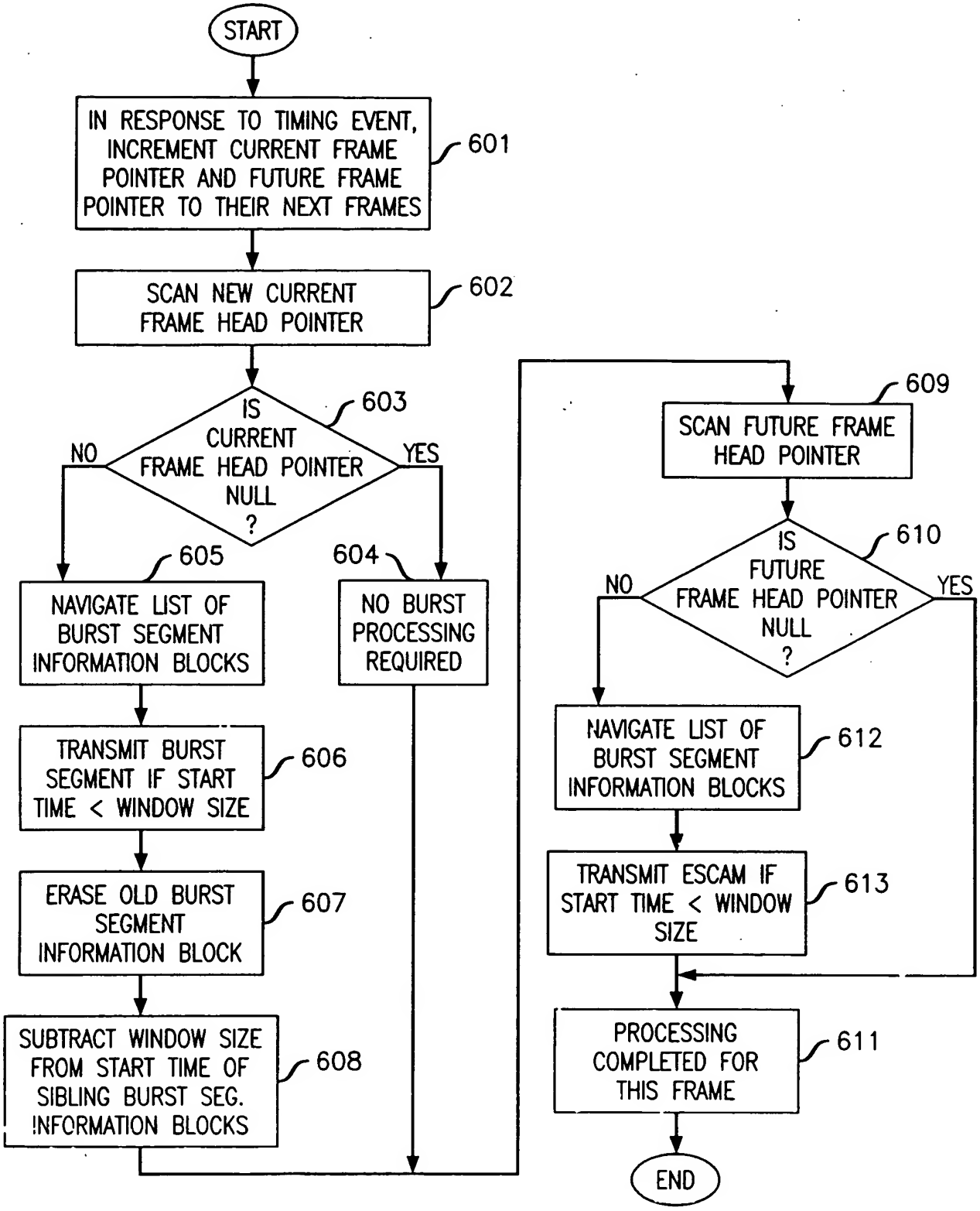

NULL
505
BURST SEG. A3
START TIME=2180ms
NULL
504
BURST SEG. D5
START TIME=1180ms
NULL
507
NULL
502
BURST SEG. D1
START TIME=1000ms
503
BURST SEG. A1
START TIME=180ms
506
BURST SEG. C3
START TIME=980ms
BURST SEGMENT INFORMATION BLOCKS
508
500
FRAME HEAD POINTER LIST
501
NULL
NULL
509
NULL
NULL
NULL
1
49
50
TIMING CONTROL
515
CURRENT FRAME
510
FUTURE FRAME
511

FIG. 5

FIG. 6


START
IN RESPONSE TO TIMING EVENT, INCREMENT CURRENT FRAME POINTER AND FUTURE FRAME POINTER TO THEIR NEXT FRAMES
601
SCAN NEW CURRENT FRAME HEAD POINTER
602
IS CURRENT FRAME HEAD POINTER NULL ?
603
NO
YES
NAVIGATE LIST OF BURST SEGMENT INFORMATION BLOCKS
605
NO BURST PROCESSING REQUIRED
604
TRANSMIT BURST SEGMENT IF START TIME < WINDOW SIZE
606
ERASE OLD BURST SEGMENT INFORMATION BLOCK
607
SUBTRACT WINDOW SIZE FROM START TIME OF SIBLING BURST SEG. INFORMATION BLOCKS
608
SCAN FUTURE FRAME HEAD POINTER
609
IS FUTURE FRAME HEAD POINTER NULL ?
610
NO
YES
NAVIGATE LIST OF BURST SEGMENT INFORMATION BLOCKS
612
TRANSMIT ESCAM IF START TIME < WINDOW SIZE
613
PROCESSING COMPLETED FOR THIS FRAME
611
END

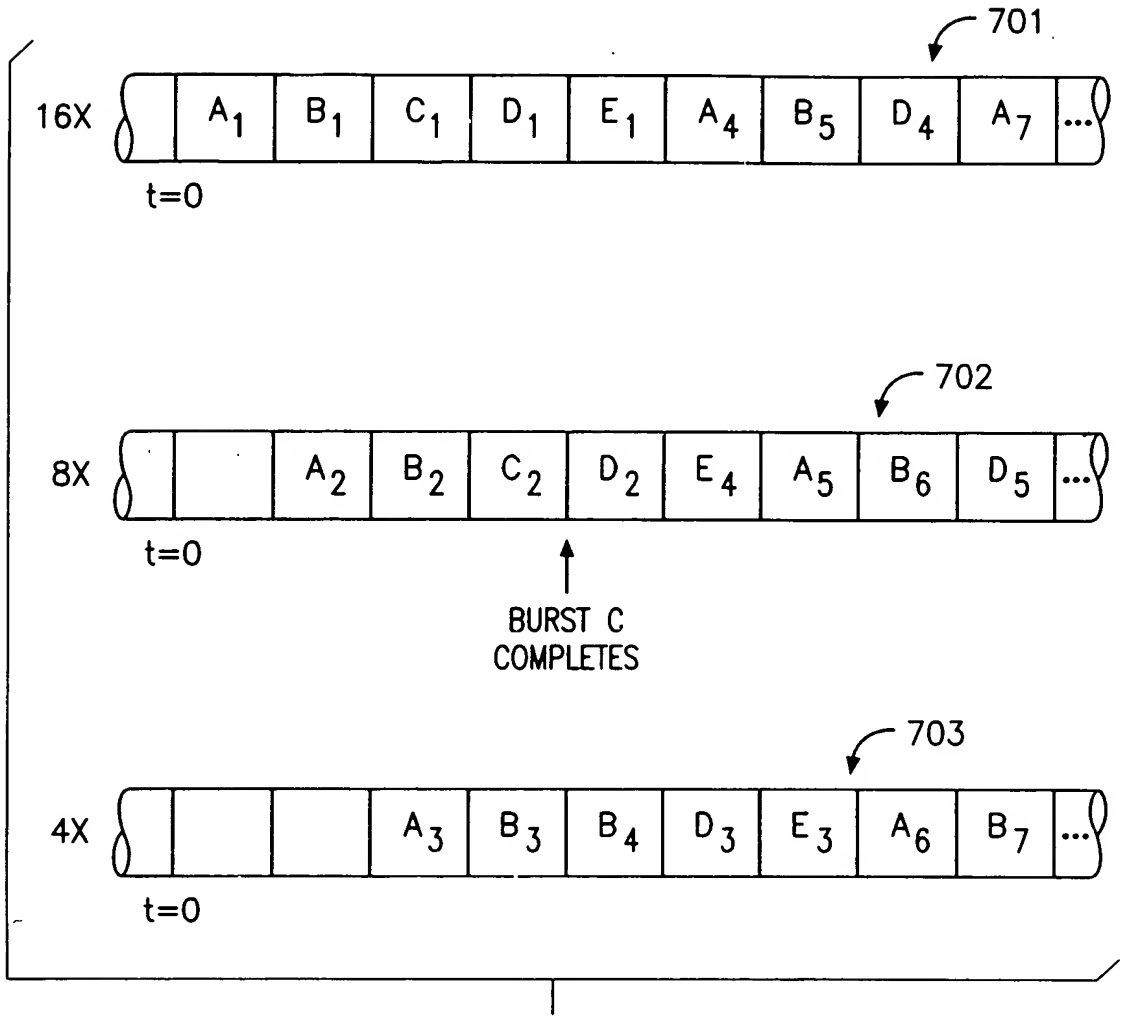

701
16X
A1 B1 C1 D1 E1 A4 B5 D4 A7 ...
t=0
702
8X
A2 B2 C2 D2 E4 A5 B6 D5 ...
t=0
BURST C
COMPLETES
703
4X
A3 B3 B4 D3 E3 A6 B7 ...
t=0

FIG. 7

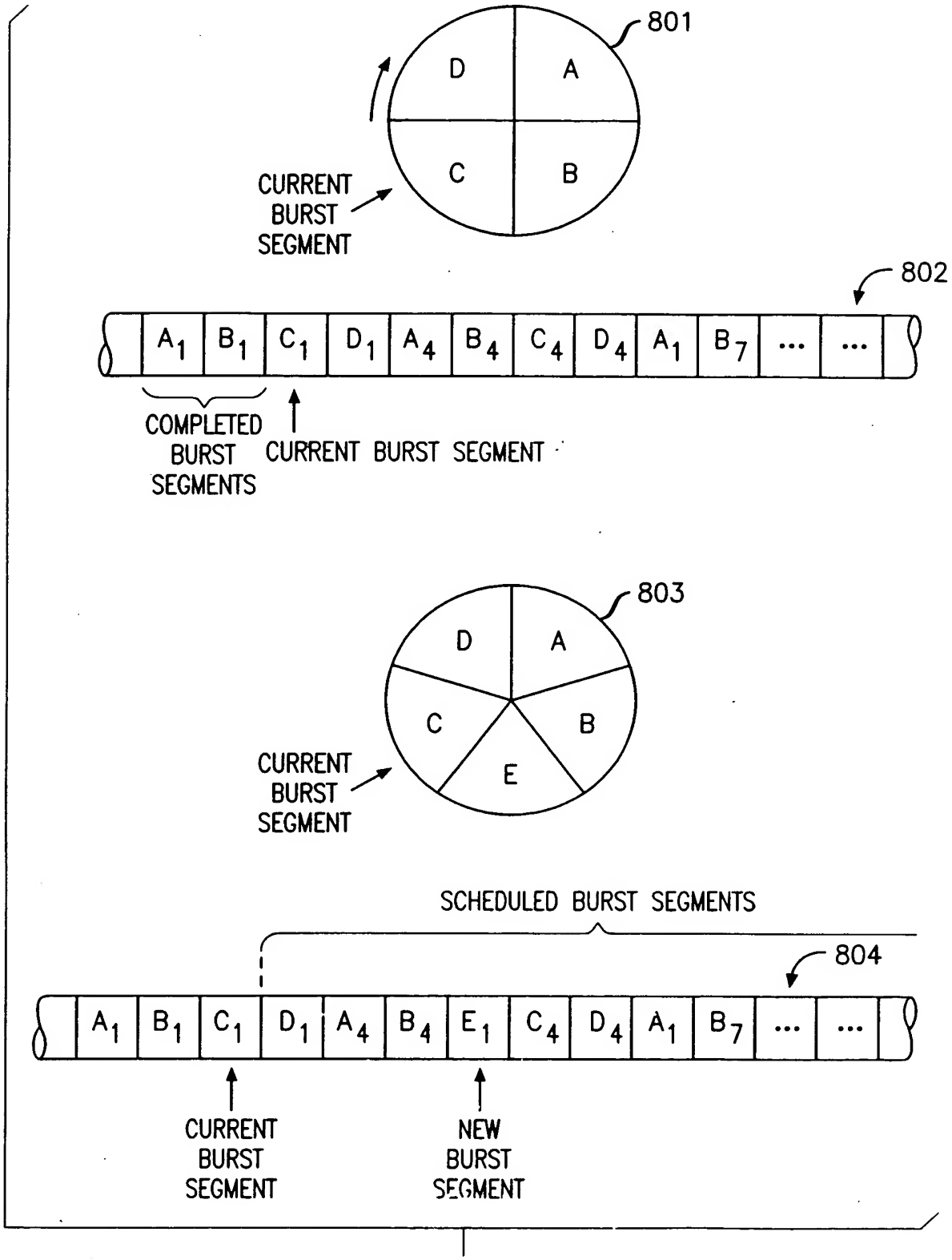

801
D
A
C
B
CURRENT BURST SEGMENT
802
A1 B1 C1 D1 A4 B4 C4 D4 A1 B7 ... ...
COMPLETED BURST SEGMENTS
CURRENT BURST SEGMENT
803
D
A
C
B
E
CURRENT BURST SEGMENT
SCHEDULED BURST SEGMENTS
804
A1 B1 C1 D1 A4 B4 E1 C4 D4 A1 B7 ... ...
CURRENT BURST SEGMENT
NEW BURST SEGMENT

FIG. 8

FIG. 9

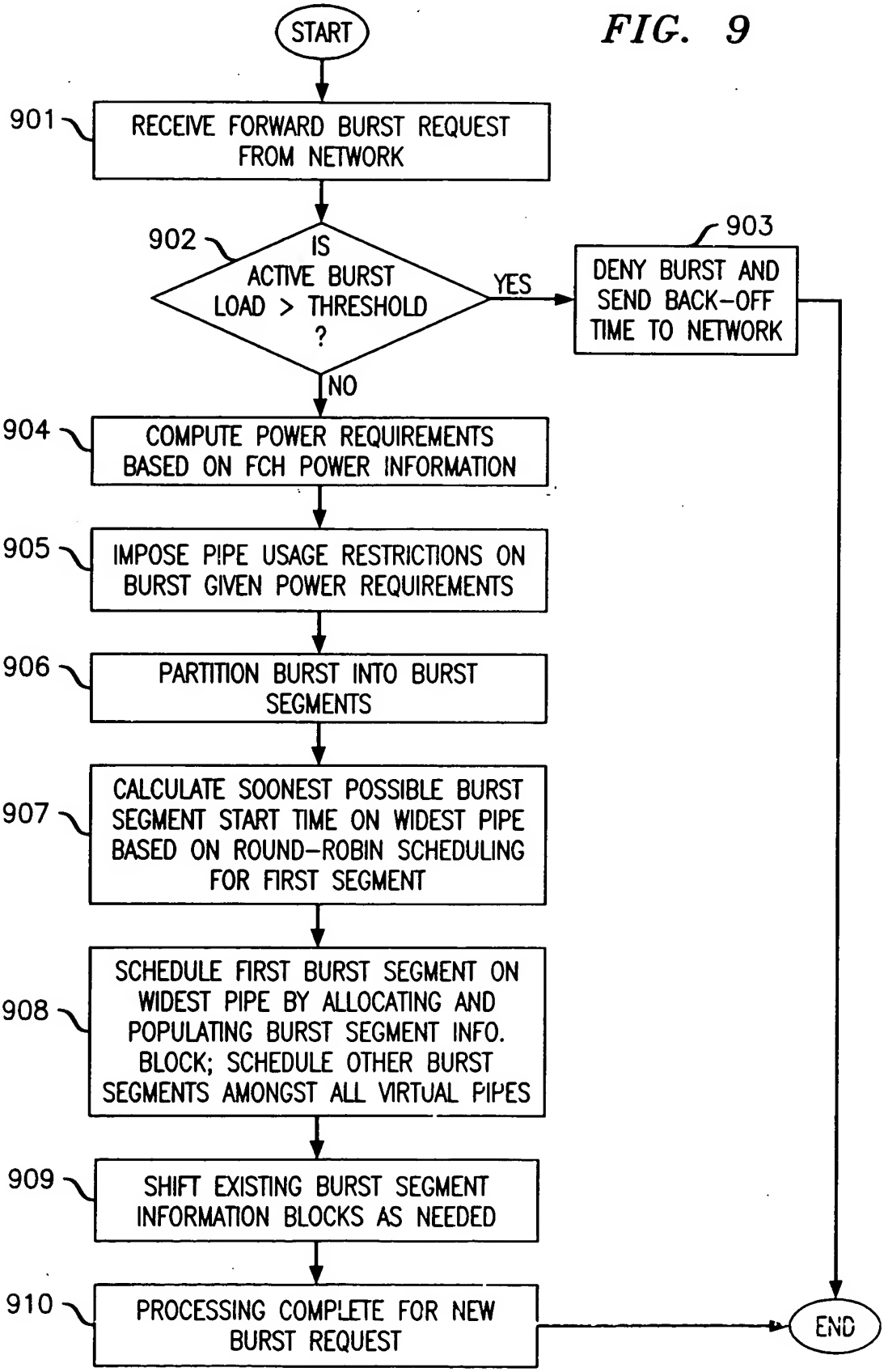
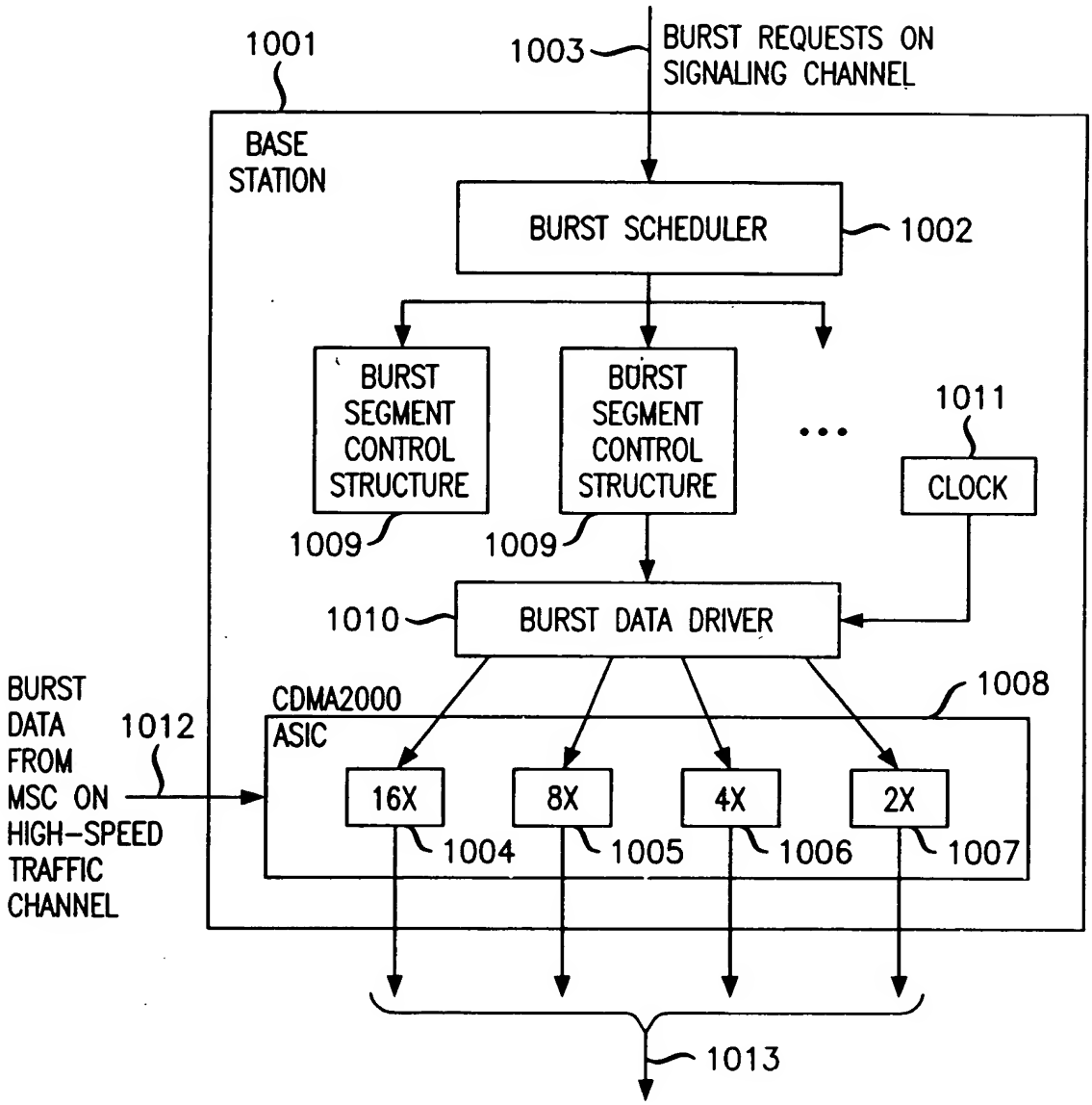

START
901
RECEIVE FORWARD BURST REQUEST FROM NETWORK
902
IS ACTIVE BURST LOAD > THRESHOLD ?
YES
903
DENY BURST AND SEND BACK-OFF TIME TO NETWORK
NO
904
COMPUTE POWER REQUIREMENTS BASED ON FCH POWER INFORMATION
905
IMPOSE PIPE USAGE RESTRICTIONS ON BURST GIVEN POWER REQUIREMENTS
906
PARTITION BURST INTO BURST SEGMENTS
907
CALCULATE SOONEST POSSIBLE BURST SEGMENT START TIME ON WIDEST PIPE BASED ON ROUND-ROBIN SCHEDULING FOR FIRST SEGMENT
908
SCHEDULE FIRST BURST SEGMENT ON WIDEST PIPE BY ALLOCATING AND POPULATING BURST SEGMENT INFO. BLOCK; SCHEDULE OTHER BURST SEGMENTS AMONGST ALL VIRTUAL PIPES
909
SHIFT EXISTING BURST SEGMENT INFORMATION BLOCKS AS NEEDED
910
PROCESSING COMPLETE FOR NEW BURST REQUEST
END

FIG. 10


1001
1003
BURST REQUESTS ON SIGNALING CHANNEL
BASE STATION
BURST SCHEDULER
1002
BURST SEGMENT CONTROL STRUCTURE
BURST SEGMENT CONTROL STRUCTURE
1011
CLOCK
1009
1009
1010
BURST DATA DRIVER
BURST DATA FROM MSC ON HIGH-SPEED TRAFFIC CHANNEL
1012
CDMA2000 ASIC
1008
16X
8X
4X
2X
1004
1005
1006
1007
1013